with a minimum 1 year follow up

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Introduction: Bone autograft is still considered the "gold standard" in the treatment of bone defect over a certain size. Silicated porous hydroxyapatite (Si-CaP/Actifuse™, ApaTech Ltd., Elstree, UK) is a new class of synthetic bone graft. Unlike other synthetic bone graft products, it was shown that Actifuse retains its three-dimensional structure until bone repair is achieved in animal trials. Clinical trials with this CE marked substance have so far mainly focused on spinal surgery.

The aim of this study was the evaluation of clinical results focused on bone healing rates in different regions.

Material and methods: In the period of two years, 33 patients with a defect fracture were substituted with Actifuse silicated HA. 23 patients were male (69.7%), the mean age was 53.3 years (18–85 years). Treated bones were the tibial head in nine patients (27.3%), the distal radius in six patients (18.2%), the femur in six patients (18.2%) the humeral head in four (12.1%), the os calcis in three patients (9.1%), the distal tibia in two (6.1) and the ulna and talus each in one case (3%). Used osteosynthesis material was mostly plates (22 cases). The HA was augmented into the remaining defect after an osteosynthesis had been performed. The implantation was performed according to the manufacturer's recommendation.

Follow up examination was at mean 14.3 months (12–17 months) after the initial procedure. It included an interview, a clinical examination and radiographs.

Results: There were no intra-operative complications related to the HA material in the series. In one case of a distal radius fracture and a distal tibial fracture a superficial wound infection occurred that was treated with conservative measures in both cases. In one case (3%) of a distal radius fracture, a plate breakage occurred after 16 weeks, a revision was performed again with HA augmentation, further healing was uneventful. A patient with a II° open femoral fracture treated by plate osteosynthesis developed a non-union. A revision with change of osteosynthesis material and re-augmentation was performed 9 months after trauma.

At follow up, 32 fractures (97%) had united. In 22 patients (67%), the augmented HA was still visible on radiographs as cloudy shadowing. There were no signs of sequestration of the implanted material.

Discussion and conclusion: Actifuse silicated HA is safe to use for defect fractures of the extremities. The application is easy and efficient. The non-union rates are comparable to the use of autologous bone material.

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Displaced metaphyseal and diaphyseal fractures of the distal radius are common in children. Percutaneous Kirschner (K) wire fixation following reduction of these fractures is a common procedure. However, using a straight wire may often be challenging due to the shallow angle the K wire needs to pass in order to engage the proximal fragment. Skin pressure and necrosis may also result at the insertion point. Rigidity of the K wire may result in ulnar deviation of the distal fragment and engaging the proximal fragment with a straight wire often necessitates starting the entry point at the tip of the radial styloid and thereby having to transgress the radial epiphysis.

We describe a technique of using a curved K wire shaped intraoperatively for fixation of this particular fracture. We have used this technique on five patients with no perioperative or postoperative complications. All patients achieved union between 3 and 5 weeks after the operation with full range of movement of the wrist. The technique is simple and has the following advantages:

(1) Avoiding the radial styloid process as an entry point and thereby avoiding transgressing the distal radial epiphysis.
(2) Avoiding skin pressure and as a result skin necrosis at the K wire entry point.
(3) Avoiding ulnar deviation of the distal radial fragment which results in anatomical reduction of the fracture.
(4) Substantive intramedullary hold of the wire in the proximal fragment.
(5) Three point fixation of the fracture.

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Why the ankle should be reduced urgently?

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Introduction: Fracture dislocation of the ankle is a common orthopaedic emergency.

Prompt closed reduction and immobilisation is required to align the joint surfaces, restore neurovascular integrity, reduce skin tension and preserve the soft tissue envelope.

Disruption of the soft tissue envelope leads to gross swelling and the formation of skin blisters, which consequently increases the risk of infection, thus delaying definitive treatment by open reduction and internal fixation.

We review a case series of eight patients where external fixation was successful in the primary treatment of fracture dislocations of the ankle with significant soft tissue compromise.